GREAT CAPTAIN ISLAND LIGHT
Great Captain Island
Greenwich Vicinity
Fairfield County
Connecticut

HAER No. CT-182

HAER
CONN
1-GREWI.V,
2-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
Chesapeake/ Allegheny System Support Office
U.S. Custom House
200 Chestnut Street
Philadelphia, PA 19106

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1-GREWI.V,
2-

HISTORIC AMERICAN ENGINEERING RECORD

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HAER No. CT-182

Location: Great Captain Island, Greenwich vicinity
Fairfield County, Connecticut
USGS Bayville, Connecticut Quadrangle
Universal Transverse Mercator Coordinates: 18.615760.4537500

Date(s) of Construction: 1868

Engineer, etc.: U.S. Lighthouse Board

Present Owner(s):

Town of Greenwich
Parks and Recreation Department
101 Field Point Road
Greenwich, CT, 06830

United States Coast Guard
Aid to Navigation Team
120 Woodward Avenue
New Haven, CT 06512

Present Occupant(s): Town of Greenwich (Lighthouse)
U.S. Coast Guard (Fog Signal and Oil houses)

Present Use: Dwelling (Lighthouse), active navigational aids (USCG buildings)

Significance: Great Captain Island Lighthouse is significant as an example of lighthouse construction techniques of the period immediately following the Civil War. Among its distinctive characteristics are standardized design, with combined masonry dwelling and cast iron tower. The lighthouse is also significant for its role in the historical development of commercial navigation on Long Island Sound and the maritime heritage of Connecticut's southwestern corner.

Project Information Statement: The United States Coast Guard (USCG) proposes to install a solar power array on their two aid-to-navigation buildings at Great Captain Island Lighthouse. The proposed project will impact the historic and engineering integrity of this property. The lighthouse is listed in the National Register of Historic Places. In accordance with an agreement between the USCG and the Connecticut State Historic Preservation Office (SHPO), Historic American Engineering Record documentation is to be prepared for the lighthouse prior to installation of the array.

Virginia H. Adams, Director of Architectural Projects
Matthew A. Kierstead, Industrial Historian
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PAL
210 Lonsdale Avenue
Pawtucket, Rhode Island 02860

PART I. DESCRIPTIVE INFORMATION

The following description of the lighthouse is drawn from the 1991 *National Register of Historic Places Inventory — Nomination form for the Great Captain Island Lighthouse*. Location and descriptive information for the Fog Signal and Oil houses has been added.

Great Captain Island Lighthouse is located on Great Captain Island, two miles south of the mainland in Greenwich, Connecticut. The mostly wooded island is a recreational area and nature reservation owned by the Town of Greenwich. The lighthouse is located at the southeast corner of the island facing the waters of Long Island Sound to the south. The immediate area around the lighthouse is open, with some dense low-lying vegetation near the steep slope to the rocky shoreline of the Sound roughly 30 feet below. The U.S. Coast Guard retains ownership of an approximately .3-acre fenced parcel at the edge of the bluff about 60 feet east of the lighthouse. This parcel contains two historic outbuildings, the Fog Signal House, and the Oil House. This parcel also contains a modern navigational aid, a flashing beacon mounted at the top of a steel tower. A modern concrete dock is located south of the U.S. Coast Guard parcel.

Great Captain Island Lighthouse is a combined dwelling and light tower built of stone in 1868. The walls of the two-and-one-half-story lighthouse are a random ashlar of rough-hewn gray granite blocks, with the corners finished with raised quoins. Similar stone forms a water table above the high basement story and the raised sills, jambs, and heads of the segmental arched windows, which are fitted with six-over-six sash. The lighthouse's gable roof, which has a deep cornice of Classical moldings, flattens out at the eaves to accommodate an internal rain gutter. There is a small brick chimney toward the center rear. The lighthouse is rectangular in plan, measuring approximately 33 ft by 36 ft, with a one-story, gable-roofed, stuccoed ell, 21 ft by 31 ft, appended to the rear at the basement story.

The lighthouse's main entrance is centered on the three-bay south elevation, recessed within a shallow portico. The portico has square chamfered stone pillars framing the entranceway, above which is a lintel which repeats the shape of the main roof. The inside jambs of the portico are finished with wood paneling.

The white-painted light tower straddles the peak of the roof on the south end of the lighthouse. Built of cast-iron plates, it consists of a square base, with large consoles extending down over the stonework of the south elevation, framing a small attic-story window; a watch room level of eight unequal sides, above which is a wide deck with an iron railing; a decagonal metal and glass lantern stage; and finally, a metal, orb-shaped ventilator finial. There are no longer any optics in the lantern. Cast-iron decorative details on the light tower include the date in large numerals, just below the base's cornice, and projecting sills and hood molds on the segmental-arched watch room windows, three of which are blind openings, with only the south-facing window glazed. The overall height of the lighthouse is 51 ft.

The lighthouse is currently occupied. The interior is essentially unaltered, and, with the exception of the watch room and lantern, features interior functions, spaces, equipment, and details typical of an ordinary domestic dwelling. The basement, first, and second floors feature plaster walls and ceilings, as well as wood floors, doors, trim and moldings. The basement floor is notable for its fireplace and mantel. The two adjacent first floor bathrooms include tile floors and typical porcelain fixtures. The attic is unfinished and is notable for its exposed roof framing. The basement and first floors are connected by stacked, twisting staircases, and the watch room and lantern are connected by short, ladder-like sets of steps.

Two historic outbuildings are located approximately 60 feet east of the lighthouse. The circa 1890 Fog Signal House is a 31 by 22-ft, one-story building with a concrete slab foundation. It has brick walls with segmental arch-topped windows and door, and a dentil string course at the window lintel line. The hipped tin roof has overhanging eaves with exposed rafter ends. A brick chimney rises from the northwest roof plane. The roof is also penetrated by two tin vent stacks. A steel entrance door is located in the southwest elevation. The windows have been blocked off, with the exception of the southwest window, which incorporates two-over-two, double-hung wood sash. The interior contains a modern gasoline-powered fog siren air compressor, and features a modern hung ceiling and partitions. The fog siren is located outside the southeast elevation. The circa 1905 Oil House is a 16 by 11-ft, one-story, brick-walled building with a concrete foundation. It has an end-gable, raised-seam tin roof with overhanging eaves. A segmental-arch doorway with steel door is located in the southeast elevation. A rectangular louvered opening is located in the northwest gable. The building contains a modern electrical transformer. Two poured-concrete oil tank support saddles are located in the area immediately east of the two outbuildings.

PART II. HISTORICAL INFORMATION

The following history of the lighthouse is drawn from the 1991 *National Register of Historic Places Inventory — Nomination form for the Great Captain Island Lighthouse*. Information on the original light and fog warning equipment, property ownership changes, and equipment automation has been added.

Great Captain Island Lighthouse is significant as an example of the lighthouse construction techniques of the period immediately following the Civil War. Among the distinctive characteristics which it embodies are a standardized design, combined tower and dwelling, cast-iron tower stage, and use of masonry as the primary material. The lighthouse is also significant for its role in the historical development of commercial navigation on Long Island Sound and the maritime heritage of Connecticut's southwestern corner.

In the years just before and after the Civil War, the Lighthouse Board, the agency established in 1852 to oversee the nation's navigational aids, undertook a program to modernize the lighthouse system. Many of the existing lighthouses were in poor structural condition, with inadequate lights and poorly trained keepers. The Board replaced the mirrored lamps found in nearly all its lighthouses with modern Fresnel lenses, issued detailed standards for operating the lights, and began replacing the worst structures with substantial new buildings. The first light at Great Captain Island, which had been built in 1830, was plagued by deteriorating mortar and cracked walls almost from the start, so it was a priority for replacement by the late 1860s. Because several other lights were being rebuilt at the same time, the Board turned to a single standardized design for six lighthouses in the Long Island Sound area. Such standardization itself became one of the central practices of the lighthouse service in the late nineteenth century. By designing nearly identical structures, the Board saved time and money at the design stage and achieved some economies of scale in the use of materials. Equally important, the Board's standardized design made it more likely that the new lights would perform better than the old.

This lighthouse design incorporated many significant new features. Like earlier lighthouses, it used substantial masonry construction to provide a bulwark against the ravages of wind and sea, but in combining the dwelling with the tower, it not only saved material but also made it easier for the keeper to attend the light. This had been a problem with earlier lighthouses, most of which had a separate keeper's house: it was

hardest to reach the light in stormy weather, just when the light was needed the most. The new design also made use of iron-plate construction for the tower. In this way it prefigured in a partial way the lights of the 1880s, which were entirely prefabricated from iron at a great savings in design, fabrication, and erection. The orb finial on the tower provided ventilation for moisture, combustion products from the lamp, and mercury vapors emitted by some rotation mechanisms. Ventilation was important not only for the keeper's health but also to avoid damage to the optics and structural deterioration caused by fumes and moisture. Finally, the architectural elaboration of the structure -- the quoins, cornice moldings, and portico -- while not of any particular architectural style, convey a well-built, carefully designed, substantial appearance intended to present a contrast to the deficient earlier lighthouse structures. Although it no longer has its original optics, Great Captain Island Light retains all of its historical form, materials, and architectural details and thus stands as a well-preserved example of the standard lighthouse construction of the 1860s. Other lighthouses of this design, all in this area and built in 1867 and 1868, include Norwalk Island and Morgan Point, Connecticut; Old Field Point and Plum Island, New York; and Block Island North, Rhode Island. The lighthouses differ only in minor details, such as the placement of the rear ell and the height of the basement story.

The 1868 replacement for the original lighthouse on Great Captain Island came about because the rapid deterioration of the 1830 tower endangered a vital navigational aid. Great Captain Island was one of seven major lights which marked the main ship channel through Long Island Sound. Vessels leaving New York would use these lights as a guide to their progress, navigating past each one in turn until reaching the eastern end of the Sound. Also, Great Captain Island is the outermost of several islands and shoals which lie off the coast of Connecticut. With smaller islands and numerous rocks to the east and Bluefish Shoal to the west, the lighthouse served to warn vessels away from certain ruin.

With the growth of New York City, the tremendous expansion of commerce which occurred as America industrialized, and the advent of steam powered vessels, it became ever more important to establish reliable navigational aids. Throughout the nineteenth century, the tonnage of shipping in Long Island Sound increased. Not only were there more ships using this waterway, but steam-powered vessels (which as early as 1850 made up 15% of the shipping) were larger and faster, making them more endangered by the numerous hazards lying along the edges of the shipping lanes. Great Captain Island Lighthouse thus stands as a symbol of the historical development of maritime commerce in Long Island Sound. On a more local level, the lighthouse also recalls the days when the nearby harbors of Connecticut were busy with packet ships, schooners carrying coal and other bulk materials for local industries, oyster boats, and pleasure craft. Great Captain Island Lighthouse was a major landmark for approaching Greenwich, Cos Cob, Greenwich Cove, and Stamford harbors.

Originally, the lantern on Great Captain Island Lighthouse contained a fourth-order Fresnel lens with a mineral oil-fired lamp. This unit was built by L. Sauter & Company of Paris, France. The beacon's focal plane was 73 ft above sea level, from which, according to nineteenth century charts, it could be seen at sea 14 nautical miles away. The Fog Signal House was constructed about 1890. It originally contained two duplicate sets of coal-fired boilers, steam engines, and Tyfon fog whistles that ran on 45 lbs of steam pressure. Fresh water for the lighthouse and the steam boilers was drawn from underground cisterns. The Oil House was built about 1905 to house tanks for fuel oil, which replaced coal as a fuel for the steam engines (USCG var.).

Due to rising costs associated with operating and maintaining offshore lighthouses, the U.S. Coast Guard began to plan for the replacement of the beacon at Great Captain Island during the late 1960s. The facility was discontinued as a manned aid-to-navigation on January 30, 1970. The beacon in the lighthouse was replaced by one on a steel tower, and automated fog signal, generator, radio, and electrical equipment was installed in the Fog Signal House. An electrical transformer was installed in the Oil House. On August 15, 1973, the Coast Guard sold the lighthouse parcel to the Town of Greenwich, which installed a resident caretaker in the structure. The Coast Guard retained an approximately .3-acre fenced parcel containing the modern light tower, Fog Signal House (now called the Sound Signal Building) and the Oil House (now called the XFMR Transformer Building) (USCG var.) Great Captain Island Lighthouse was listed in the National Register of Historic Places on April 3, 1991.

PART III. SOURCES OF INFORMATION

A. Engineering drawings:

United States Coast Guard. GREAT CAPTAIN ISLAND L/S, LONG ISLAND SOUND, CONN.: CONVERSION TO A.C. POWER & INSTALLATION OF NEW FOG SIGNAL, DWELLING FLOOR PLANS. n.d. Drawing No. 03-2624. United States Coast Guard Civil Engineering Unit, Metro Center Boulevard, Warwick, RI.

United States Coast Guard. GREAT CAPTAIN ISLAND LIGHT STATION. (Northwest and northeast elevations and basement floor plan). July 24, 1916. Drawing No. 5912, United States Coast Guard Civil Engineering Unit, Metro Center Boulevard, Warwick, RI.

United States Coast Guard. GREAT CAPTAIN ISLAND LIGHT STATION: ARRANGEMENT OF PIPING & MACHINERY FOR FOG SIGNAL INSTALLATION. May 19, 1934. Drawing No. 8075, United States Coast Guard Civil Engineering Unit, Metro Center Boulevard, Warwick, RI.

U.S. Department of Commerce, National Oceanic and Atmospheric Administration. NEW HAVEN HARBOR ENTRANCE, PAGE D, INSET 8. August 10, 1991. U.S. Coastal Navigation Chart No. 12364. United States Coast Guard Civil Engineering Unit, Metro Center Boulevard, Warwick, RI.

B. Historic views:

United States Coast Guard. AERIAL VIEW OF GREAT CAPTAIN ISLAND LIGHTHOUSE, FOG SIGNAL BUILDING, OIL HOUSE, AND DOCK, ca. 1964. United States Coast Guard Civil Engineering Unit, Metro Center Boulevard, Warwick, RI.

C. Interviews:

None conducted.

D. Bibliography:

Clouette, Bruce, and Matthew Roth
1991 *National Register of Historic Places Registration Form for Great Captain Island Lighthouse*. Connecticut Historical Commission, Hartford, CT.

U.S. Coast Guard
var. Background files for Great Captain Island Lighthouse, USCG Civil Engineering Unit, Warwick, RI.

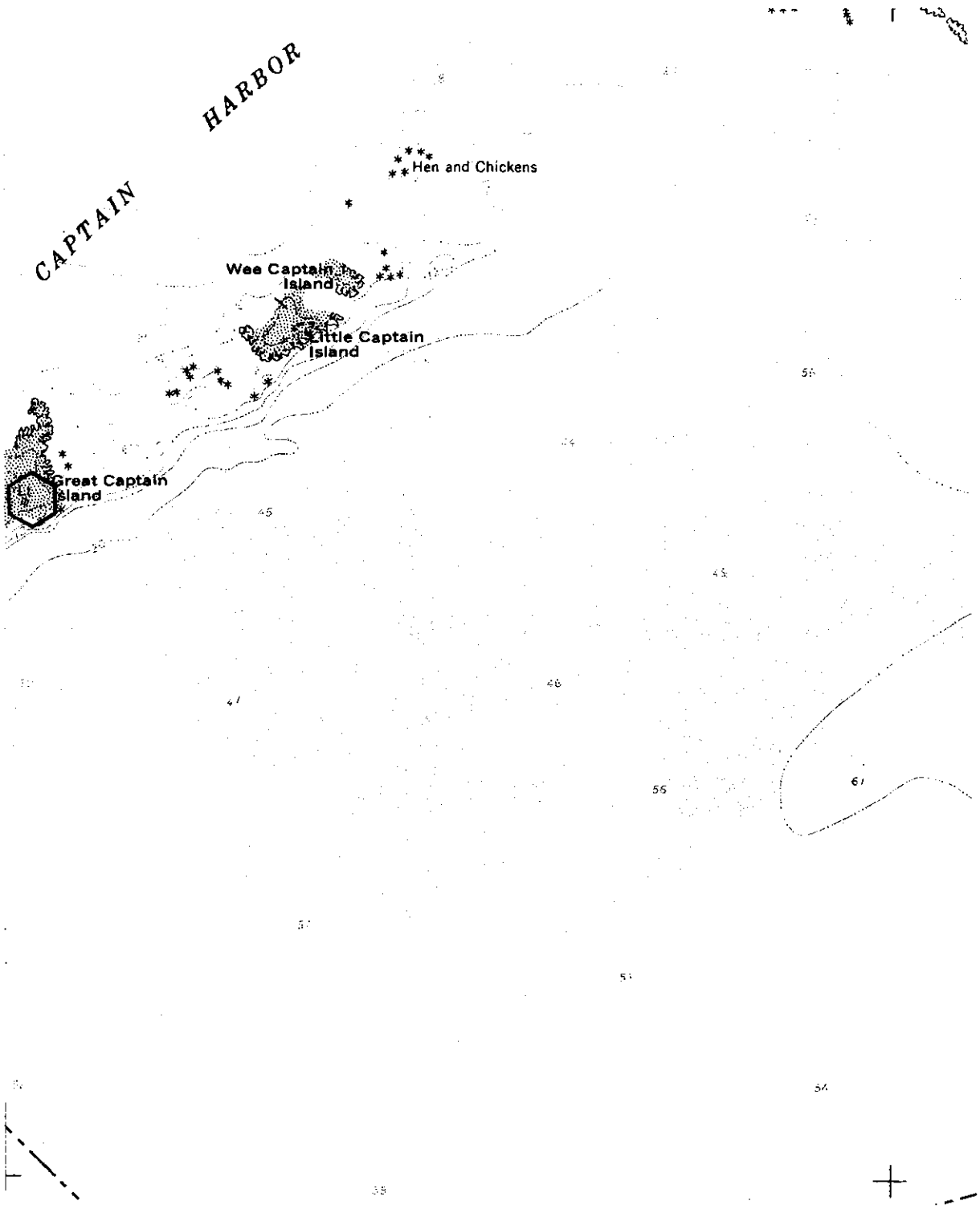
E. Likely sources not yet investigated:

None identified.

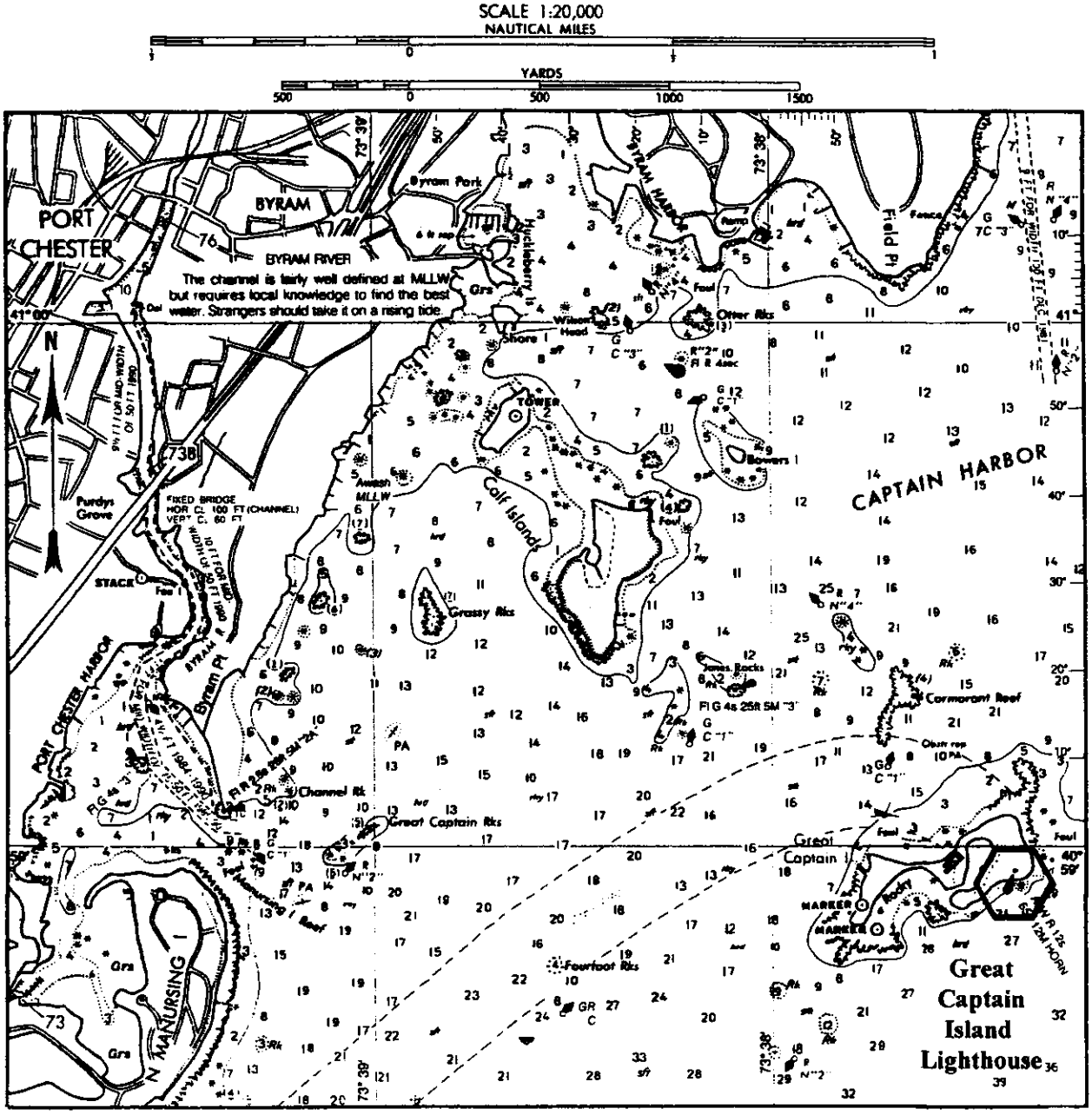
F. Supplemental material:

None.

Location Map

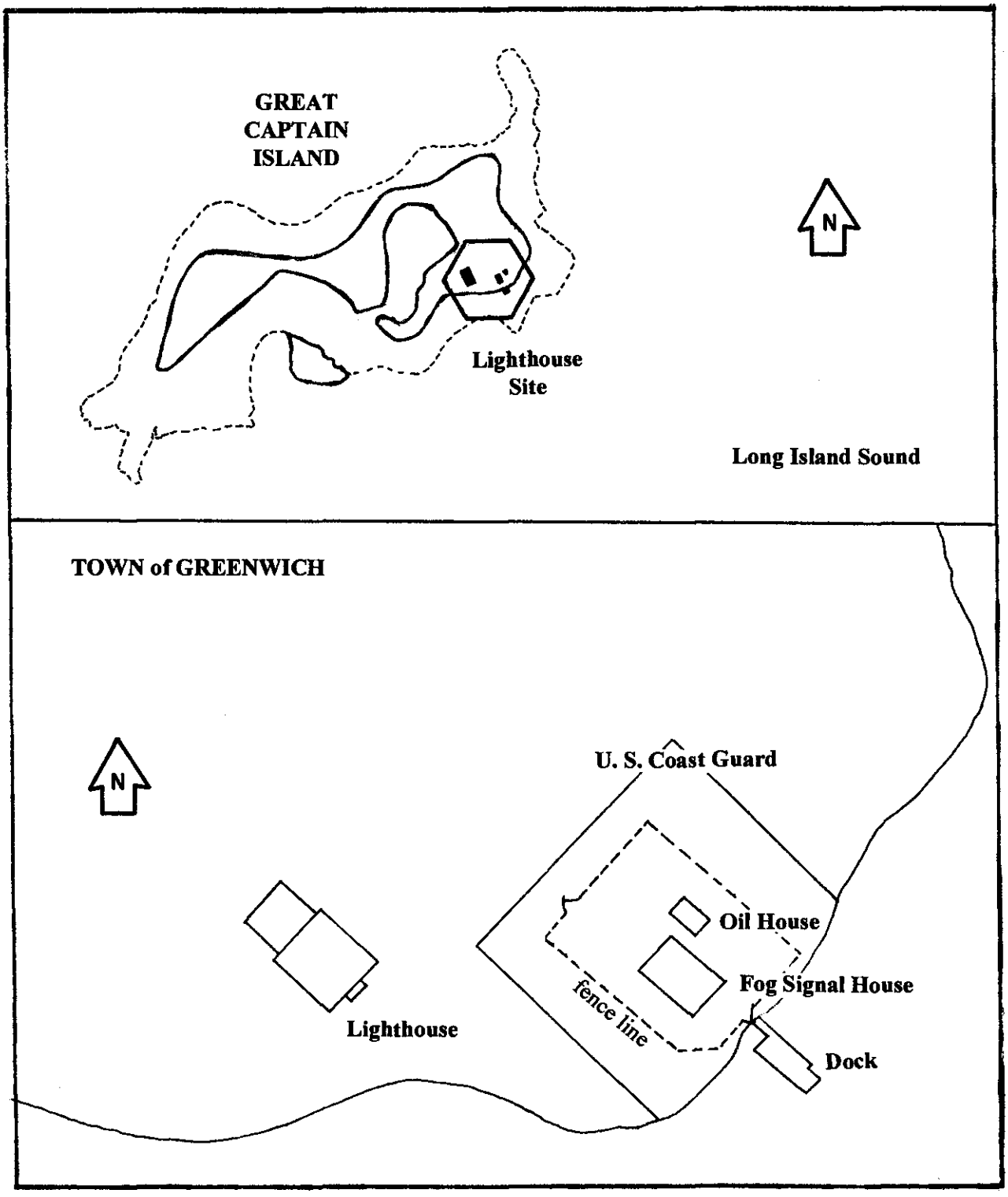


Location Map

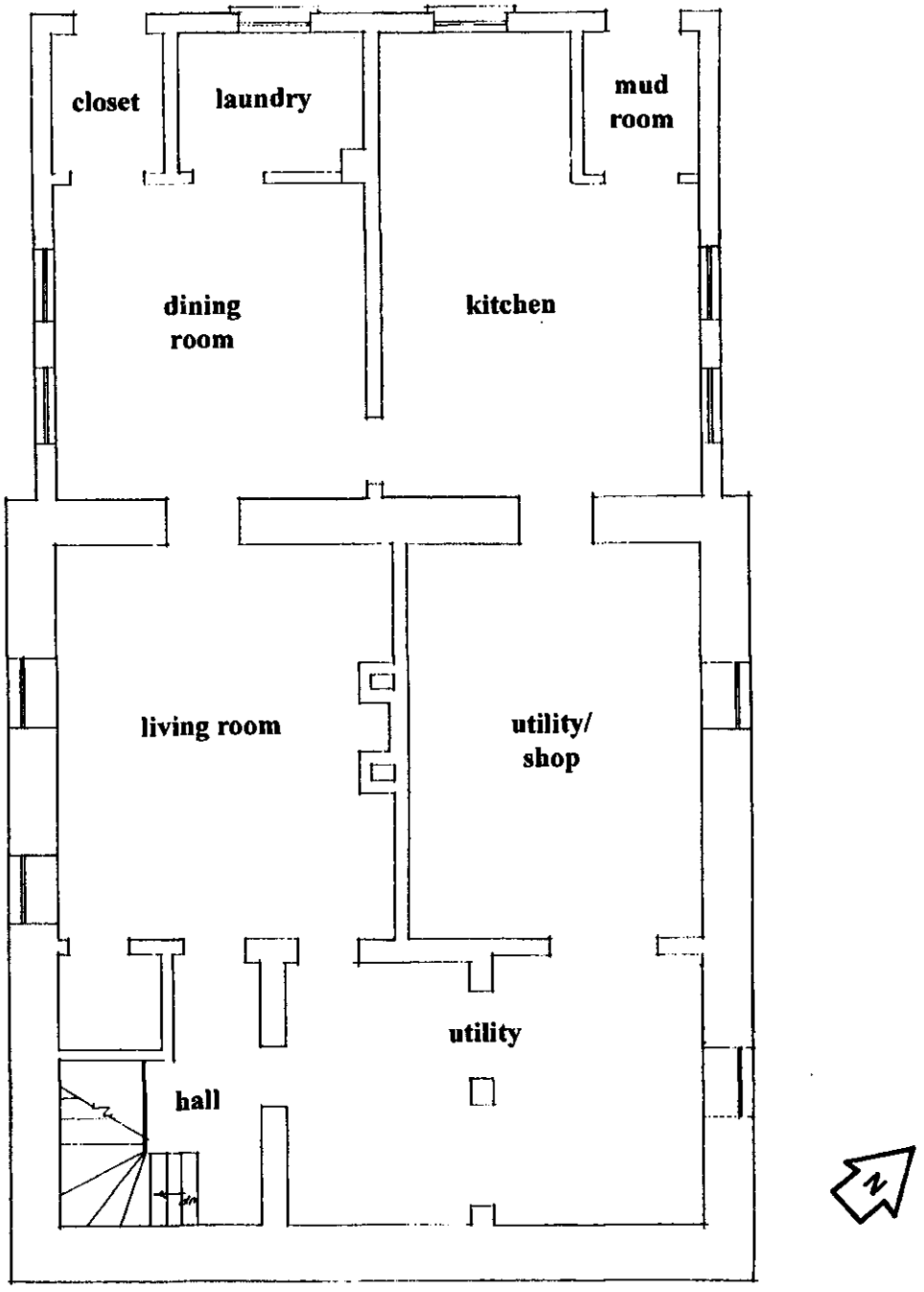


U.S. Department of Commerce, National Oceanic and Atmospheric Administration, U.S. Coastal Navigation Chart No. 12364, NEW HAVEN HARBOR ENTRANCE, PAGE D, INSET 8. August 10, 1991.

SITE PLANS

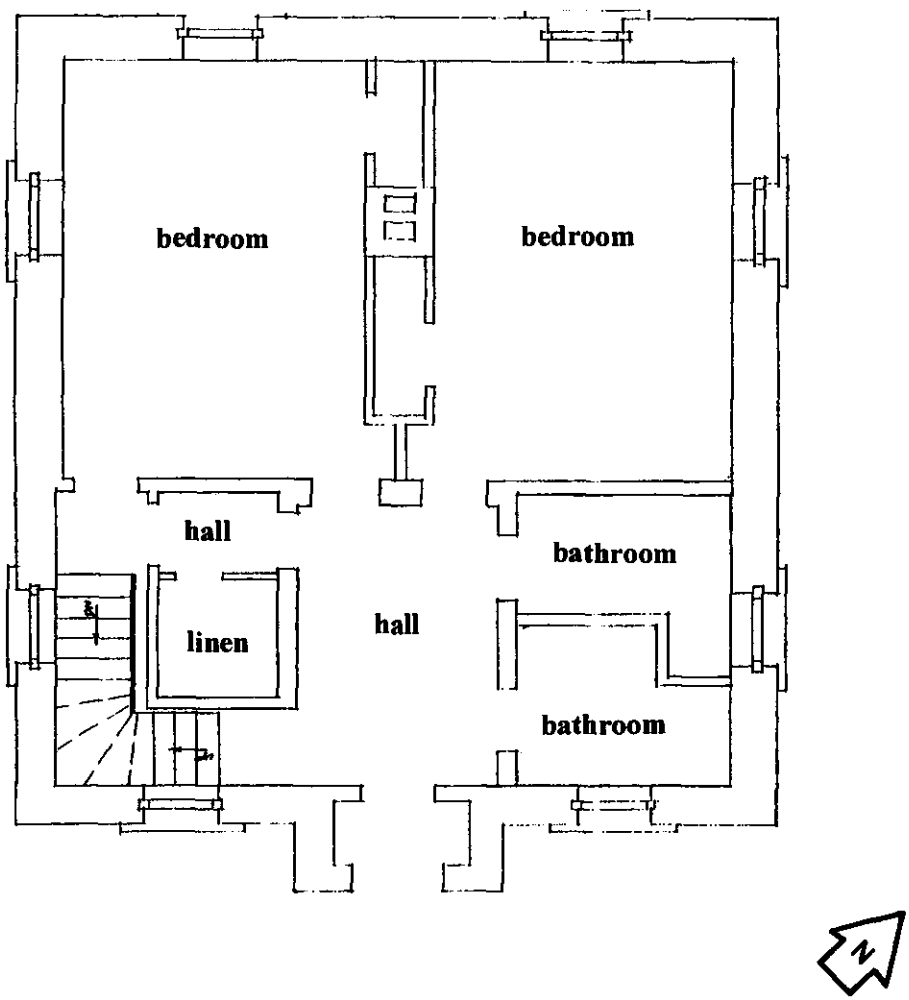

GREAT
CAPTAIN
ISLAND
N
Lighthouse
Site
Long Island Sound
TOWN of GREENWICH
N
U. S. Coast Guard
Oil House
Fog Signal House
fence line
Dock
Lighthouse

BASEMENT FLOOR PLAN



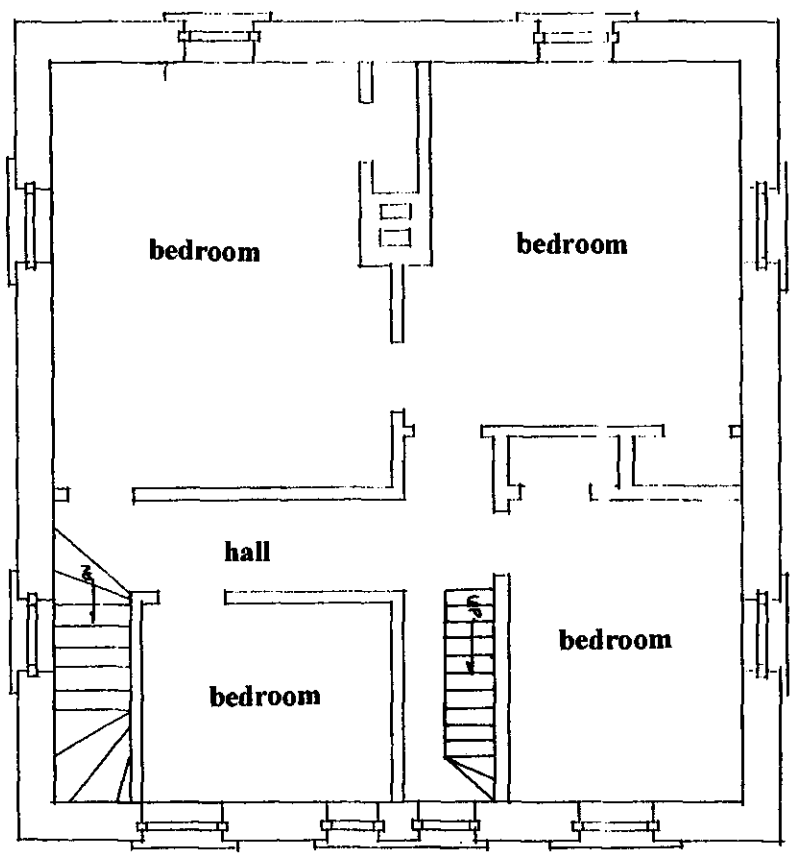
Sketch based on United States Coast Guard drawing, GREAT CAPTAIN ISLAND L/S, LONG ISLAND SOUND. CONN.: CONVERSION TO A.C. POWER & INSTALLATION OF NEW FOG SIGNAL, DWELLING FLOOR PLANS. n.d. Drawing No. 03-2624. United States Coast Guard Civil Engineering Unit, Metro Center Boulevard. Warwick, RI.

FIRST FLOOR PLAN



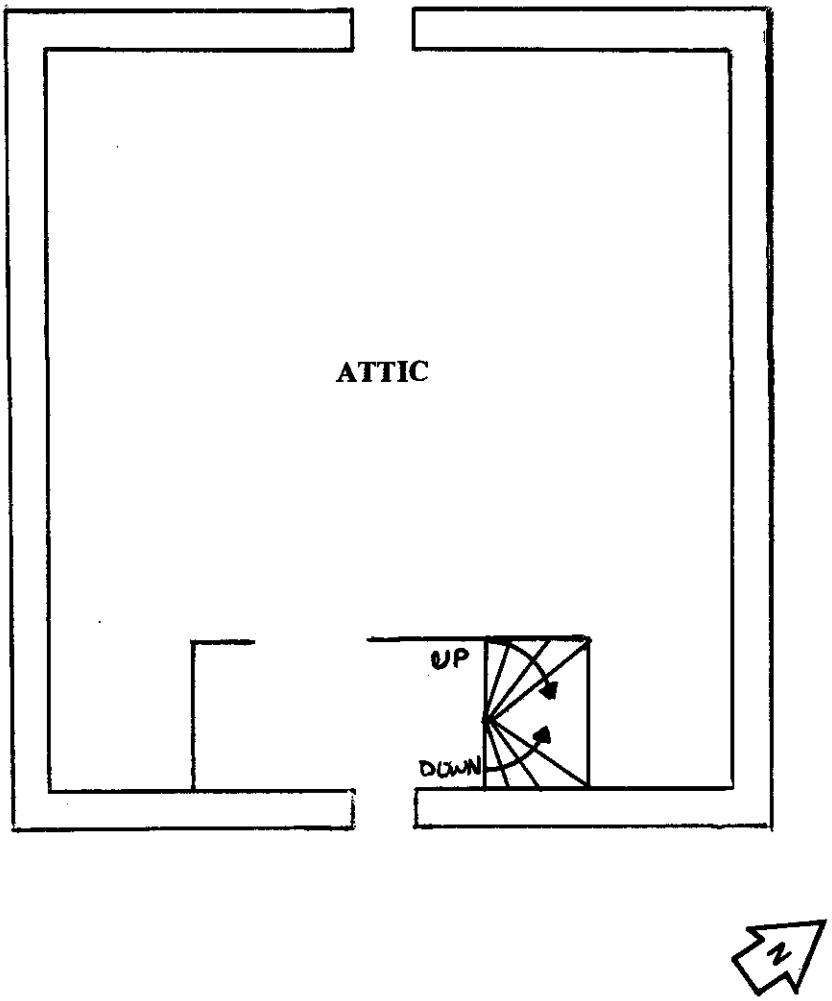
Sketch based on United States Coast Guard drawing, GREAT CAPTAIN ISLAND L/S, LONG ISLAND SOUND, CONN.: CONVERSION TO A.C. POWER & INSTALLATION OF NEW FOG SIGNAL, DWELLING FLOOR PLANS. n.d. Drawing No. 03-2624. United States Coast Guard Civil Engineering Unit, Metro Center Boulevard, Warwick, RI.

SECOND FLOOR PLAN

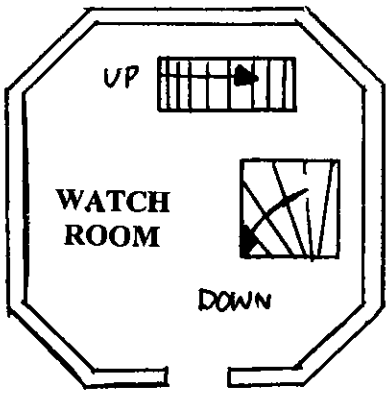


Sketch based on United States Coast Guard drawing, GREAT CAPTAIN ISLAND L/S, LONG ISLAND SOUND, CONN.: CONVERSION TO A.C. POWER & INSTALLATION OF NEW FOG SIGNAL, DWELLING FLOOR PLANS. n.d. Drawing No. 03-2624. United States Coast Guard Civil Engineering Unit, Metro Center Boulevard, Warwick, RI.

ATTIC FLOOR PLAN



WATCH ROOM FLOOR PLAN



LANTERN FLOOR PLAN